

## INTRODUCTION TO COMPUTER SCIENCE

*Introduction to Computer Science* allows students to explore the world of Computer Science. Students will gain a broad understanding of the areas composing Computer Science. Additionally, there will be a focus on the areas of computer programming, gaming/mobile development, and artificial intelligence/robotics.

- DOE Code: 4803
- Recommended Grade Level: Grade 9-10
- Recommended Prerequisites: None
- Credits: 1 credit per semester, maximum of 2 credits (Designed as a 1 semester course.)
- Counts as a Directed Elective or Elective for the General, Core 40, Core 40 with Academic Honors and Core 40 with Technical Honors diplomas

### **Career and Technical Student Organizations (CTSOs)**

Career and Technical Student Organizations are considered a powerful instructional tool when integrated into Career and Technical Education programs. They enhance the knowledge and skills students learn in a course by allowing a student to participate in a unique program of career and leadership development. Students should be encouraged to participate in Business Professional of America, DECA, or Future Business Leaders of America, the CTSOs for this area.

## Content Standards

### **Domain – Computer Science**

#### **Core Standard 1 Students**

##### **Standards**

- ICS-1.1 Create a definition of computer science
- ICS-1.2 Define computational thinking
- ICS-1.3 Examine the history of computers and computer science
- ICS-1.4 Investigate trends in computer science
- ICS-1.5 Summarize ethical issues within computer science
- ICS-1.7 Identify the careers in computer science

### **Domain – Programming and Development**

#### **Core Standard 2 Students**

##### **Standards**

- ICS-2.1 Apply the program design process using object oriented concepts
- ICS-2.2 Understand and utilize data types and variables
- ICS-2.3 Analyze conditional decision making and iteration
- ICS-2.4 Formulate algorithms using programming structures
- ICS-2.5 Construct a user interface for a program through coding
- ICS-2.6 Asses a program by testing and verifying accuracy
- ICS-2.7 Evaluate the use of graphics within a program
- ICS-2.8 Examine the development of websites, mobile applications, and games

### **Domain – Data**

### **Core Standard 3 Students**

#### **Standards**

- ICS-3.1 Identify types of data
- ICS-3.2 Differentiate between structures of data
- ICS-3.3 Use a database in the creation of a program

### **Domain – Computers, Devices, and Other Technologies**

#### **Core Standard 3 Students**

#### **Standards**

- ICS-3.1 Recall features of computers
- ICS-3.2 Identify mobile devices
- ICS-3.3 Recognize the impact of the Internet on society
- ICS-3.4 Investigate the use of artificial intelligence by individuals and society
- ICS-3.6 Examine the development of robotics
- ICS-3.7 Examine computer security issues and the field of cryptography

### **Domain – Collaboration**

#### **Core Standard 3 Students**

#### **Standards**

- ICS-3.1 Design a solution to a problem by working in a team
- ICS-3.2 Compare tools that can be used in collaboration